BUILDING SITE DEVELOPMENT Elk County, Kansas

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. The following tables show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Map symbol and soil name	Pct of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercia buildings	ıl
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
015CS:							
Clime	- 67	Very limited Shrink-swell Slope	1.00	Very limited Shrink-swell Depth to soft bedrock	1.00	Very limited Shrink-swell Slope	1.00
Sogn	30	Depth to hard bedrock Shrink-swell	0.50	Slope Very limited Depth to hard bedrock Shrink-swell	0.04 1.00 0.50	Very limited Depth to hard bedrock Slope	1.00
015LA:		Slope	0.04	Slope	0.04	Shrink-swell	0.50
Labette	90	Very limited Shrink-swell Depth to hard bedrock	1.00	Very limited Shrink-swell Depth to hard bedrock	1.00	Very limited Shrink-swell Depth to hard bedrock	1.00
015LD: Labette	- 50	Very limited Shrink-swell Depth to hard bedrock	1.00	Very limited Shrink-swell Depth to hard bedrock	1.00	Very limited Shrink-swell Depth to hard bedrock	1.00
Dwight	40	Very limited Shrink-swell Depth to hard bedrock	1.00	Very limited Shrink-swell Depth to hard bedrock	1.00	Very limited Shrink-swell Depth to hard bedrock	1.00
015LS: Ladysmith	90	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	 Very limited Shrink-swell	1.00
035FA: Florence	85	Very limited Shrink-swell Slope	1.00	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 0.84 0.16	Very limited Shrink-swell Slope	1.00
035SD: Sogn	90	Very limited Depth to hard bedrock Shrink-swell	1.00	Very limited Depth to hard bedrock Shrink-swell	1.00	Very limited Depth to hard bedrock Shrink-swell	1.00 0.50 0.12
073CA: Chase	90	Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 1.00 0.95	Slope Very limited Flooding Shrink-swell	1.00
073EB: Eram	- 85	Very limited Shrink-swell	1.00	Very limited Depth to saturated zone	1.00	Very limited Shrink-swell	1.00
		Depth to saturated zone	1.00	Shrink-swell Depth to soft	1.00	Depth to saturated zone	1.00
073RE: Reading	90	Very limited Flooding Shrink-swell	1.00	bedrock Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell	1.00
125BF: Bates	- 50	Not limited		Somewhat limited Depth to soft	0.35	Not limited	
Collinsville	40	Depth to hard	1.00	bedrock Very limited Depth to hard	1.00	Very limited Depth to hard bedrock	1.00

Map symbol and soil name	Pct of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercia buildings	al
		Rating class and limiting features	Value	Rating class and limiting features		Rating class and limiting features	
125ET: Eram	50	Shrink-swell	1.00	Very limited Depth to saturated zone	1.00	Very limited Shrink-swell	1.00
		Depth to saturated zone	1.00	Shrink-swell Depth to soft bedrock	0.29	Depth to saturated zone Slope	0.86
Talihina	35	Very limited Depth to soft bedrock Shrink-swell Depth to saturated zone Slope	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Depth to soft bedrock Slope	1.00 1.00 1.00	Very limited Depth to soft bedrock Shrink-swell Slope Depth to	1.00 1.00 1.00
1250S:		_		1		saturated zone	
Osage	90	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
205BA: Bates	99	Not limited		Somewhat limited Depth to soft bedrock	0.20	Not limited	
205EB: Eram	90	Very limited Shrink-swell	1.00	Very limited Depth to saturated zone	1.00	Very limited Shrink-swell	1.00
		Depth to saturated zone	1.00	Shrink-swell Depth to soft bedrock	0.29	Depth to saturated zone	1.00
205ND: Niotaze	50	Very limited Shrink-swell		Very limited Depth to saturated zone	1.00	Very limited Shrink-swell	1.00
		Slope Depth to saturated zone	1.00	Shrink-swell Slope Depth to soft	1.00	Slope Depth to saturated zone	1.00
Darnell	35	Depth to soft bedrock	1.00	bedrock Very limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock	1.00
205PE: Prue	90	Slope Somewhat limited Shrink-swell	0.16	Slope Very limited Shrink-swell	1.00	Slope Somewhat limited Shrink-swell	0.50
205sc: Shidler	70	Very limited Depth to hard bedrock Shrink-swell	1.00	Very limited Depth to hard bedrock Shrink-swell	1.00	Slope Very limited Depth to hard bedrock Shrink-swell	1.00
Catoosa	15	Somewhat limited		Very limited Depth to hard	1.00	Slope Somewhat limited Shrink-swell	0.12
		Depth to hard bedrock	0.46	bedrock Shrink-swell	0.50	Depth to hard bedrock	0.46
205SF: Steedman	90	Very limited Shrink-swell	1.00	Very limited Depth to	1.00	Very limited Shrink-swell	1.00
		Slope Depth to saturated zone	1.00	saturated zone Shrink-swell Slope	1.00	Slope Depth to saturated zone	1.00
				Depth to soft bedrock	0.29		

Map symbol and soil name	Pct of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercia buildings	1
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
205SM: Stephenville	60	Not limited		Somewhat limited Depth to soft	0.71	Somewhat limited Slope	0.00
Darnell	30	Somewhat limited Depth to soft bedrock	1.00	bedrock Very limited Depth to soft bedrock	1.00	Somewhat limited Depth to soft bedrock Slope	1.00
205WO: Woodson	90	Very limited Shrink-swell	1.00	Very limited Depth to	1.00	Very limited Shrink-swell	1.00
		Depth to saturated zone	1.00	saturated zone Shrink-swell	1.00	Depth to saturated zone	1.00
AED: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
Ba: Bates	90	Not limited		Somewhat limited Depth to soft bedrock	0.29	Not limited	
Bb: Bates	90	Not limited		Somewhat limited Depth to soft bedrock	0.29	Somewhat limited Slope	0.48
Bf: Benfield	85	Very limited Shrink-swell	1.00	Very limited Shrink-swell Depth to soft bedrock	1.00	Very limited Shrink-swell Slope	1.00
Cd: Catoosa	90	Somewhat limited Shrink-swell	0.50	Very limited Depth to hard bedrock	1.00	Somewhat limited Shrink-swell	0.50
Cf:		Depth to hard bedrock	0.15		0.50	Depth to hard bedrock	0.15
Catoosa	55	Somewhat limited Depth to hard bedrock Shrink-swell	0.79	Very limited Depth to hard bedrock Shrink-swell	1.00	Somewhat limited Depth to hard bedrock Shrink-swell	0.79
Sogn	35	Very limited Depth to hard bedrock Shrink-swell	1.00	Very limited Depth to hard bedrock Shrink-swell	1.00	Slope Very limited Depth to hard bedrock Shrink-swell	0.00 1.00 0.50
Ck: Clime	100	Very limited Slope Shrink-swell	1.00	Very limited Slope Shrink-swell Depth to soft bedrock	1.00 1.00 0.20	Slope Very limited Slope Shrink-swell	1.00
Cm: Clime	90	Very limited Shrink-swell	1.00		1.00	Very limited Shrink-swell Slope	1.00
Cs: Clime	65	Very limited Shrink-swell Slope	1.00	Very limited Shrink-swell Slope Depth to soft	1.00 0.84 0.35	Very limited Shrink-swell Slope	1.00
Sogn	20	Very limited Depth to hard bedrock	1.00	bedrock Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00
(h.		Shrink-swell Slope	0.50	Shrink-swell Slope	0.50	Slope Shrink-swell	1.00
Cv: Collinsville	55	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00
Bates	35	Not limited		Somewhat limited Depth to soft bedrock	0.29	Slope Somewhat limited Slope	0.12

Map symbol and soil name	Pct of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercia buildings	.1
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
De: Dennis	100	Very limited Shrink-swell	1.00	Very limited Depth to saturated zone	1.00	Very limited Shrink-swell	1.00
Df:		Depth to saturated zone	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00
Dennis	100	Very limited Shrink-swell	1.00	Very limited Depth to saturated zone	1.00	Very limited Shrink-swell	1.00
		Depth to saturated zone	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00
Dg: Dennis, eroded	100		1 00	Very limited	1.00	Slope Very limited Shrink-swell	1.00
		Shrink-swell Depth to	1.00	Depth to saturated zone Shrink-swell	1.00	Depth to	1.00
Dw:		saturated zone				saturated zone Slope	0.12
Dwight	90	Very limited Shrink-swell	1.00	Very limited Shrink-swell Depth to hard bedrock	1.00	Very limited Shrink-swell	1.00
Em: Eram	90	Very limited Shrink-swell	1.00	Very limited Depth to	1.00	Very limited Shrink-swell	1.00
		Depth to saturated zone	1.00	saturated zone Shrink-swell	1.00	Depth to saturated zone	1.00
En:				Depth to soft bedrock	0.20		
Eram	90	Very limited Shrink-swell	1.00	Very limited Depth to saturated zone	1.00	Very limited Shrink-swell	1.00
		Depth to saturated zone	1.00	Shrink-swell Depth to soft	0.20	Depth to saturated zone Slope	0.48
Eo: Eram, eroded	90	 Very limited		bedrock Very limited		 Very limited	
		Shrink-swell Depth to	1.00	Depth to saturated zone Shrink-swell	1.00	Shrink-swell Depth to	1.00
		saturated zone		Depth to soft bedrock	0.35	saturated zone Slope	0.12
Es: Eram	70	 Very limited Shrink-swell	1.00	Very limited Depth to	1.00	 Very limited Shrink-swell	1.00
		Depth to saturated zone	1.00	saturated zone Shrink-swell	1.00	Depth to saturated zone	1.00
Dwight	30	Very limited	1 00	Depth to soft bedrock Very limited	0.46	Very limited	1 00
_		Shrink-swell	1.00	Shrink-swell Depth to hard bedrock	1.00	Shrink-swell	1.00
Fe: Fiat	90	Very limited Depth to saturated zone Shrink-swell Depth to hard bedrock	1.00 1.00 0.46	Very limited Depth to saturated zone Shrink-swell Depth to hard bedrock	1.00	Very limited Depth to saturated zone Shrink-swell Depth to hard bedrock	1.00 1.00 0.46
Fm: Florence	60	Very limited Shrink-swell	1.00	Very limited Shrink-swell Depth to hard bedrock	1.00	Very limited Shrink-swell Slope	1.00
Martin	30	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell Slope	1.00

Map symbol and soil name	Pct of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercia buildings	1
		Rating class and limiting features	Value	Rating class and limiting features		Rating class and limiting features	Value
Iv: Ivan	85	Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell	1.00
Iw: Ivan	90	Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell	1.00
Kd: Kenoma	90	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
La: Labette	90	Very limited Shrink-swell Depth to hard bedrock	1.00	Very limited Shrink-swell Depth to hard bedrock	1.00	Very limited Shrink-swell Depth to hard bedrock	1.00
Ld: Labette	65	Very limited Shrink-swell Depth to hard bedrock	1.00	Very limited Shrink-swell Depth to hard bedrock	1.00	Very limited Shrink-swell Depth to hard bedrock	1.00
Dwight	35	Very limited Shrink-swell	1.00	Very limited	1.00	Very limited Shrink-swell	1.00
Lg: Labette	55	Shrink-swell Depth to hard	1.00	Depth to hard	1.00	Very limited Shrink-swell Depth to hard bedrock	1.00
Sogn	35	bedrock Very limited Depth to hard bedrock Shrink-swell	1.00	bedrock Very limited Depth to hard bedrock Shrink-swell	1.00	Very limited Depth to hard bedrock Shrink-swell	1.00
Ln: Lanton	100	Very limited Flooding Depth to saturated zone Shrink-swell		Very limited Flooding Depth to saturated zone	1.00	Slope Very limited Flooding Depth to saturated zone Shrink-swell	1.00 0.98 0.50
M-W: Miscellaneous Water-	100		0.30	Not rated	0.30	Not rated	0.50
Mb: Martin	85	Very limited Shrink-swell	1.00	Very limited Shrink-swell Depth to saturated zone	1.00	Very limited Shrink-swell	1.00
Mc: Martin	90	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell Slope	1.00
Me: Martin, eroded	90	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell Slope	1.00
Mn: Mason	90	Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell			1.00
Nc: Newtonia	100	 Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Nd: Niotaze	75	Very limited Shrink-swell	1.00	Very limited Depth to	1.00	Very limited Shrink-swell	1.00
		Slope Depth to saturated zone	1.00	saturated zone Shrink-swell Slope	1.00	Slope Depth to saturated zone	1.00
Darnell	15	Somewhat limited Depth to soft bedrock Slope	1.00	Depth to soft bedrock Very limited Depth to soft bedrock Slope	1.00	Very limited Depth to soft bedrock Slope	1.00

Map symbol and soil name	Pct of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercia buildings	1
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NDD: Niotaze	55	Very limited Shrink-swell Depth to saturated zone Slope	1.00	Very limited Depth to saturated zone Shrink-swell Slope	1.00	Very limited Shrink-swell Slope Depth to	1.00
Darnell	35			Depth to soft bedrock Very limited Depth to soft bedrock Slope	0.29 1.00 0.63	Saturated zone Very limited Depth to soft bedrock Slope	1.00
Os: Osage	100	_		Very limited Ponding Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
Po: Pits, Quarries	100	Not rated		Not rated		Not rated	
Pr: Prue	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50
Sh: Sogn	85	Very limited Depth to hard bedrock Shrink-swell	1.00	Very limited Depth to hard bedrock Shrink-swell	1.00	Very limited Depth to hard bedrock Shrink-swell	1.00
St: Steedman	85	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.98 0.84	Very limited Depth to saturated zone Shrink-swell Slope	1.00	Very limited Shrink-swell Slope Depth to saturated zone	1.00 1.00 0.98
Sv: Stephenville	95	Not limited		Depth to soft bedrock Somewhat limited Depth to soft bedrock	0.06	Not limited	
Sw: Stephenville	50	Not limited		Somewhat limited Depth to soft	0.29	Somewhat limited Slope	0.00
Darnell	40	Somewhat limited Depth to soft bedrock	1.00	bedrock Very limited Depth to soft bedrock	1.00	Somewhat limited Depth to soft bedrock Slope	1.00
SXX: Stephenville	50	Not limited		Somewhat limited Depth to soft	0.46	Not limited	
Darnell	40	Somewhat limited Depth to soft bedrock	1.00	bedrock Very limited Depth to soft bedrock	1.00	Somewhat limited Depth to soft bedrock	1.00
Vd: Verdigris	85	Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell	1.00
Vf: Verdigris	100	Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell	1.00
W: Water	100	Not rated		Not rated		Not rated	

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Wo: Woodson	90	Very limited Shrink-swell	1.00	Very limited Depth to saturated zone	1.00	Very limited Shrink-swell	1.00
		Depth to saturated zone	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00

Map symbol and soil name	Pct of map unit	Local roads an streets	ıd	Shallow excavati	ons	Lawns and landsca	ping
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
015CS: Clime	- 67	Very limited Shrink-swell Frost action	1.00	Somewhat limited Too clayey Depth to soft bedrock	0.32	Very limited Too clayey Depth to bedrock	1.00
		Slope	0.04	Cutbanks cave Slope	0.10	1 -	0.04
Sogn	- 30	Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to bedrock	l
		Shrink-swell Frost action Slope	0.50	Cutbanks cave Slope	0.10	Droughty Slope Content of large stones	1.00 0.04 0.00
015LA: Labette	- 90	 Verv limited		 Very limited		Somewhat limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.01
00.55		Frost action Depth to hard bedrock	0.50	Too clayey Cutbanks cave	0.12		
015LD: Labette	- 50	Very limited Shrink-swell	1.00	Very limited Depth to hard bedrock	1.00	Somewhat limited Depth to bedrock	0.01
		Frost action Depth to hard bedrock	0.50	Too clayey Cutbanks cave	0.12		
Dwight	- 40	Shrink-swell		Very limited Depth to hard bedrock	1.00	Somewhat limited Depth to bedrock	0.20
015LS:		Frost action Depth to hard bedrock	0.50	Too clayey Cutbanks cave	0.68		
Ladysmith	90	Very limited Shrink-swell Frost action	1.00	Somewhat limited Too clayey Cutbanks cave	0.50	Not limited	
035FA: Florence	- 85	Very limited Shrink-swell Frost action	1.00	Very limited Too clayey Depth to hard bedrock		Very limited Gravel content Slope	1.00
		Slope	0.16	Slope Cutbanks cave	0.16	Droughty Content of large stones	0.01
035SD: Sogn	90	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock		Very limited Depth to bedrock	1.00
		Shrink-swell Frost action	0.50	Cutbanks cave	0.10	Droughty Content of large stones	1.00
073CA: Chase	90	Very limited Frost action	1.00	Somewhat limited Depth to saturated zone	0.95	Somewhat limited Flooding	0.60
		Flooding Shrink-swell	1.00	Flooding Too clayey Cutbanks cave	0.60 0.12 0.10		
073EB: Eram	- 85	Very limited Shrink-swell	1.00	Very limited Depth to	1.00	Very limited Depth to	1.00
		Depth to saturated zone	1.00	saturated zone Depth to soft bedrock Too clayey Cutbanks cave	0.20 0.12 0.10	saturated zone Depth to bedrock	0.20
073RE: Reading	90	Very limited Frost action Low strength Shrink-swell Flooding	1.00 1.00 0.50 0.40	Somewhat limited Cutbanks cave Too clayey	0.10	Not limited	

and soil name	Pct of map unit	Local roads an streets	d	Shallow excavati	ons	Lawns and landsca	ping
		Rating class and limiting features	Value	Rating class and limiting features		Rating class and limiting features	Value
125BF: Bates	50	Not limited		Very limited Cutbanks cave Depth to soft	1.00	Somewhat limited Depth to bedrock	0.35
Collinsville	40	Very limited Depth to hard bedrock	1.00	bedrock Very limited Depth to hard bedrock Cutbanks cave	1.00	Very limited Depth to bedrock Droughty Content of large	0.98
125ET: Eram	50	Very limited Shrink-swell	1.00	Very limited Depth to saturated zone	1.00	stones Very limited Depth to saturated zone	1.00
Talihina	35	Depth to saturated zone	1.00	Depth to soft bedrock Too clayey Cutbanks cave Very limited	0.29 0.12 0.10	Depth to bedrock Very limited	0.29
Tallillia	33	Depth to soft bedrock Shrink-swell	1.00	Depth to soft bedrock Depth to	1.00	Depth to bedrock Depth to	1.00
		Depth to saturated zone Slope	0.94	saturated zone Slope Cutbanks cave	0.84	saturated zone Slope Droughty	0.84
1250S: Osage	90	Very limited Shrink-swell Ponding	1.00	Very limited Ponding Depth to	1.00	Content of large stones Very limited Ponding Depth to	1.00
		Depth to saturated zone Flooding	1.00	saturated zone Flooding Too clayey	0.60	saturated zone Too clayey Flooding	1.00
205BA: Bates	99	Not limited		Cutbanks cave Very limited Cutbanks cave Depth to soft bedrock	1.00 0.20	Somewhat limited Depth to bedrock	0.20
205EB: Eram	90	Very limited Shrink-swell Depth to saturated zone	1.00	Very limited Depth to saturated zone Depth to soft bedrock Too clayey	1.00 0.29 0.12	Very limited Depth to saturated zone Depth to bedrock	1.00
205ND: Niotaze	50	Very limited Shrink-swell Slope Depth to	1.00 1.00 0.75	Cutbanks cave Very limited Depth to saturated zone Slope Too clayey	1.00 1.00 0.12	Very limited Content of large stones Slope Depth to	1.00 1.00 0.75
Darnell	35	saturated zone Somewhat limited Depth to soft bedrock	1.00	Cutbanks cave Depth to soft bedrock Very limited Depth to soft bedrock	0.10	saturated zone Depth to bedrock Very limited Depth to bedrock	1.00
205PE: Prue	90	Slope Somewhat limited Shrink-swell	0.16	Slope Cutbanks cave Somewhat limited Cutbanks cave	0.16	Droughty Slope Content of large stones	0.92 0.16 0.03

Map symbol and soil name	Pct of map unit	of streets		Shallow excavati	ons	Lawns and landsca	ping
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
205SC: Shidler	70	Very limited Depth to hard bedrock Shrink-swell	1.00	Very limited Depth to hard bedrock Cutbanks cave	1.00	Very limited Depth to bedrock Droughty	1.00
Catoosa	15	Somewhat limited Shrink-swell	0.50	Very limited Depth to hard bedrock	1.00	Content of large stones Somewhat limited Depth to bedrock	0.20
205SF: Steedman	90	Depth to hard bedrock Very limited Shrink-swell	1.00	Cutbanks cave Very limited Depth to saturated zone	1.00	Very limited Slope	1.00
		Slope Depth to saturated zone	0.75	Slope Too clayey	1.00	Depth to saturated zone Depth to bedrock	0.75
		Saturated Zone		Depth to soft bedrock Cutbanks cave	0.29	Content of large stones Gravel content	0.11
205SM: Stephenville	60	Not limited		Somewhat limited Depth to soft bedrock	0.71	Somewhat limited Depth to bedrock	0.71
Darnell	30	Somewhat limited		Cutbanks cave Very limited	0.10	Droughty Content of large stones Very limited	0.06
Darmerr	30	Depth to soft bedrock	1.00	Depth to soft bedrock Cutbanks cave	1.00	Depth to bedrock Droughty Content of large stones	1.00 0.92 0.03
205WO: Woodson	90	Very limited Shrink-swell Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey	1.00	Somewhat limited Depth to saturated zone	0.94
AED: Arents, Earthen Dam-	100	Not rated		Cutbanks cave	0.10	Not rated	
Ba: Bates	90	Not limited		Somewhat limited Depth to soft bedrock Cutbanks cave	0.29	Somewhat limited Depth to bedrock	0.29
Bb: Bates	90	Not limited		Very limited Cutbanks cave Depth to soft bedrock	1.00	Somewhat limited Depth to bedrock	0.29
Bf: Benfield	85	Very limited Shrink-swell Frost action	1.00	Very limited Cutbanks cave Depth to soft bedrock	1.00	Somewhat limited Gravel content Depth to bedrock	0.16 0.06 0.03
Cd: Catoosa	90	Somewhat limited Shrink-swell	0.50	Very limited Depth to hard	1.00	Content of large stones Somewhat limited Depth to bedrock	0.03
		Depth to hard bedrock	0.15	bedrock Cutbanks cave	0.10		

Map symbol and soil name	Pct of map unit	Local roads an streets	d	Shallow excavati	ons	Lawns and landsca	ping
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Cf: Catoosa	- 55	Somewhat limited Depth to hard bedrock	0.79	Very limited Depth to hard bedrock	1.00	Somewhat limited Depth to bedrock	0.80
Sogn	35	Shrink-swell Very limited Depth to hard bedrock	1.00	Cutbanks cave Very limited Depth to hard bedrock	1.00	Very limited Depth to bedrock	l
ol- i		Shrink-swell Frost action	0.50	Cutbanks cave	0.10	Droughty Content of large stones	1.00
Ck: Clime	100	Very limited Slope Shrink-swell Frost action	1.00 1.00 0.50	Very limited Slope Too clayey Depth to soft bedrock Cutbanks cave	1.00	Very limited Slope Depth to bedrock Content of large stones	1.00 0.20 0.00
Cm: Clime	90	Very limited Shrink-swell		Somewhat limited Depth to soft bedrock	0.35	Very limited Too clayey	1.00
Cs:		Frost action	0.50		0.32	Depth to bedrock	0.35
Clime	65	Very limited Shrink-swell Slope	1.00	Somewhat limited Slope Depth to soft bedrock	0.84	Very limited Too clayey Slope	1.00
Sogn	20	Frost action	0.50	Too clayey Cutbanks cave Very limited	0.32	Depth to bedrock	0.35
		Depth to hard bedrock Shrink-swell Frost action Slope		Depth to hard bedrock Cutbanks cave Slope		Depth to bedrock Droughty	1.00
Cv: Collinsville	- 55		1.00	Very limited Depth to hard bedrock Cutbanks cave	1.00	Very limited Depth to bedrock Droughty	1.00
Bates	35	Not limited		Very limited Cutbanks cave Depth to soft bedrock	1.00	Content of large stones Somewhat limited Depth to bedrock	
De: Dennis	100	Very limited Shrink-swell	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.94
		Depth to saturated zone	0.94	Too clayey Cutbanks cave	0.12		
Df: Dennis	100	Very limited Shrink-swell	1.00	Very limited Depth to	1.00	Somewhat limited Depth to	0.94
		Depth to saturated zone	0.94	saturated zone Too clayey Cutbanks cave	0.12	saturated zone	
Dg: Dennis, eroded	100	Very limited Shrink-swell	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.94
		Depth to saturated zone	0.94	Too clayey Cutbanks cave	0.12	Sacaracca zone	
Dw: Dwight	90	Very limited Shrink-swell	1.00	Somewhat limited Depth to hard	0.96	Not limited	
		Frost action	0.50	bedrock Too clayey Cutbanks cave	0.76		

Map symbol and soil name	Pct of map unit	Local roads an streets	d	Shallow excavati	ons	Lawns and landsca	ping
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Em: Eram	90	Very limited Shrink-swell Depth to saturated zone	1.00	Very limited Depth to saturated zone Depth to soft bedrock Too clayey Cutbanks cave	İ	Very limited Depth to saturated zone Depth to bedrock	1.00
En: Eram	90	Very limited Shrink-swell Depth to saturated zone	1.00	saturated zone Depth to soft bedrock Too clayey Cutbanks cave	1.00 0.20 0.12 0.10	Very limited Depth to saturated zone Depth to bedrock	1.00
Eo: Eram, eroded	90	Very limited Shrink-swell Depth to saturated zone	1.00	Very limited Depth to saturated zone Depth to soft bedrock Too clayey Cutbanks cave	1.00 0.35 0.12 0.10	Very limited Depth to saturated zone Depth to bedrock	1.00
Es: Eram	- 70	Very limited Shrink-swell Depth to saturated zone	1.00	saturated zone Depth to soft bedrock Too clayey	1.00 0.46 0.12	Very limited Depth to saturated zone Depth to bedrock	1.00
Dwight	- 30	Very limited Shrink-swell Frost action	1.00	Cutbanks cave Somewhat limited Depth to hard bedrock Too clayey Cutbanks cave	0.10 0.99 0.76 0.10	Not limited	
Fe: Fiat	90	Very limited Depth to saturated zone Shrink-swell Depth to hard bedrock	1.00	Very limited Depth to hard bedrock Depth to saturated zone Too clayey Cutbanks cave	1.00 1.00 0.50 0.10	Very limited Depth to saturated zone Depth to bedrock	1.00
Fm: Florence	- 60	Very limited Shrink-swell Frost action	1.00	Very limited Cutbanks cave Too clayey Depth to hard bedrock	1.00	Very limited Gravel content Droughty Content of large stones	1.00 0.12 0.00
Martin	- 30	Very limited Frost action Shrink-swell	1.00	Somewhat limited	0.32	Not limited	
Iv: Ivan	- 85	Very limited Flooding Frost action Shrink-swell	1.00 0.50 0.00	Somewhat limited Flooding Cutbanks cave	0.80	Very limited Flooding	1.00
Iw: Ivan	90	Very limited Flooding Frost action Shrink-swell	1.00 0.50 0.00	Somewhat limited Flooding Cutbanks cave	0.60	Somewhat limited Flooding	0.60
Kd: Kenoma	90	Very limited Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave	0.50	Not limited	
La: Labette	90	Very limited Shrink-swell Frost action Depth to hard bedrock	1.00 0.50 0.46	Very limited Depth to hard bedrock Too clayey Cutbanks cave	1.00 0.12 0.10	Somewhat limited Depth to bedrock	0.46

Map symbol and soil name	Pct of map unit	streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ld: Labette	65	Very limited Shrink-swell	1.00	Very limited Depth to hard bedrock	1.00	Somewhat limited Depth to bedrock	0.46
Dwight	35	Frost action Depth to hard bedrock Very limited	0.50	Too clayey Cutbanks cave Somewhat limited	0.12	Not limited	
. 3 .		Shrink-swell Frost action	1.00	Depth to hard bedrock Too clayey	0.96		
Lg: Labette	55	Very limited Shrink-swell	1.00	Cutbanks cave Very limited Depth to hard	1.00	Somewhat limited Depth to bedrock	0.80
		Depth to hard bedrock	0.79	bedrock Too clayey	0.12	_	
Sogn	35	Depth to hard bedrock	1.00	Cutbanks cave Very limited Depth to hard bedrock	1.00	Very limited Depth to bedrock	
		Shrink-swell Frost action	0.50	Cutbanks cave	0.10	Droughty Content of large stones	1.00
Ln: Lanton	100	Flooding	1.00	saturated zone	1.00	Somewhat limited Depth to saturated zone	0.75
		Depth to saturated zone Shrink-swell	0.75	Flooding Cutbanks cave Too clayey	0.60 0.10 0.02	Flooding	0.60
M-W: Miscellaneous Water-	100	Not rated		Not rated	0.02	Not rated	
Mb: Martin	85	Very limited Frost action	1.00	Very limited Depth to saturated zone	1.00	Not limited	
Mc:		Shrink-swell	1.00	Too clayey Cutbanks cave	0.32		
Martin Me:	90	Very limited Frost action Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave	0.32	Not limited	
Martin, eroded	90	Very limited Frost action Shrink-swell	1.00	Somewhat limited Too clayey Cutbanks cave	0.32	Very limited Too clayey	1.00
Mn: Mason	90	Somewhat limited Shrink-swell Flooding	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Nc: Newtonia	100		1.00	Somewhat limited Cutbanks cave Too clayey	0.10	Not limited	
Nd: Niotaze	75	Very limited Shrink-swell	1.00	Very limited Depth to saturated zone	1.00	Very limited Content of large	1.00
		Slope Depth to saturated zone	1.00	Slope Depth to soft bedrock Too clayey	1.00 0.46 0.12	stones Slope Depth to saturated zone Depth to bedrock	1.00 0.75 0.46
Darnell	15	Somewhat limited Depth to soft bedrock Slope	1.00	Cutbanks cave Very limited Depth to soft bedrock Slope	0.10 1.00 0.84	Very limited Depth to bedrock Droughty	1.00
		210be	0.04	Cutbanks cave	0.10	Slope Content of large stones	0.84

Map symbol and soil name	Pct of map unit	streets	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
NDD: Niotaze	- 55	Very limited Shrink-swell	1.00	Very limited Depth to saturated zone	1.00	Very limited Content of large stones		
		Slope Depth to saturated zone	0.96	Slope Depth to soft bedrock Too clayey Cutbanks cave	0.96 0.29 0.12 0.10	Slope Depth to saturated zone Depth to bedrock	0.96 0.75 0.29	
Darnell	- 35	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock	1.00	Very limited Depth to bedrock	1.00	
Os:		Slope	0.63	Slope Cutbanks cave	0.63	Droughty Slope Content of large stones	0.96 0.63 0.03	
Osage	100	Very limited Shrink-swell Ponding Depth to saturated zone	1.00	Very limited Ponding Depth to saturated zone Flooding	1.00	Very limited Ponding Depth to saturated zone Flooding	1.00	
Po:		Flooding	1.00	Too clayey Cutbanks cave	0.32			
Pits, Quarries	- 100	Not rated		Not rated		Not rated		
Pr: Prue	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited		
Sh: Sogn	85	Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to bedrock	İ	
G.		Shrink-swell Frost action	0.50	Cutbanks cave	0.10	Droughty Content of large stones	1.00	
St: Steedman	- 85	Very limited Shrink-swell	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Slope	0.84	
		Slope Depth to	0.84	Slope Too clayey	0.84	Depth to saturated zone Content of large	0.75	
		saturated zone		Cutbanks cave Depth to soft bedrock	0.10	stones Depth to bedrock Gravel content	0.06	
Sv: Stephenville	95	Not limited		Somewhat limited Depth to soft bedrock	0.29	Somewhat limited Depth to bedrock	0.29	
Sw:				Cutbanks cave	0.10	Content of large stones	0.03	
Stephenville	- 50	Not limited		Somewhat limited Depth to soft bedrock	0.29	Somewhat limited Depth to bedrock	0.29	
Darnell	40	 Somewhat limited		Cutbanks cave	0.10	Content of large stones Very limited	0.03	
		Depth to soft bedrock	1.00	Depth to soft bedrock Cutbanks cave	0.10	Depth to bedrock Droughty Content of large stones	1.00	

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SXX: Stephenville	50	Not limited		Somewhat limited Depth to soft bedrock Cutbanks cave	0.46	Somewhat limited Depth to bedrock Content of large	0.46
Darnell	40	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock Cutbanks cave	1.00	stones Very limited Depth to bedrock Droughty Content of large stones	1.00 0.96 0.03
Vd: Verdigris	85	Very limited Flooding Shrink-swell	1.00	Somewhat limited Flooding Cutbanks cave	0.80	Very limited Flooding	1.00
Vf: Verdigris	100	Very limited Flooding Shrink-swell	1.00	Somewhat limited Flooding Cutbanks cave	0.60	Somewhat limited Flooding	0.60
W: Water	100	Not rated		Not rated		Not rated	
Wo: Woodson	90	Very limited Shrink-swell Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey	1.00	Somewhat limited Depth to saturated zone	0.94
		saturated zone		Cutbanks cave	0.10		